# WEST FORK SMITH RIVER

# INSTREAM AND RIPARIAN RESTORATION PROJECTS

# EA OR-125-98-09

## Proposed this 23rd day of July, 1998

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This action is subject to and in conformance with the *Coos Bay District Resource Management Plan & Environmental Impact Statement* and its Record of Decision (BLM, 1995)(RMP); which is in conformance with the *Final Supplemental Environmental Impact Statement on Management of Habitat for Late-Successional and Old-Growth Forest Related Species Within the Range of the Northern Spotted Owl* and its Record of Decision (Interagency, 1994)(Northwest Forest Plan).

# TABLE OF CONTENTS


Chapter I - Purpose and Need for Action . . . . . -1-
Purpose and Need . . . . . -1-
Objectives . . . . . -2-
Aquatic Conservation Strategy . . . . . -2-
Issues, Concerns, and Opportunities . . . . . -3-
Geographical Area . . . . . -4-
Permits, Licenses, and Entitlements Necessary to Implement the Project . . . . . -4-

Chapter II - Alternatives Including the Proposed Action . . . . . -5-
No Action . . . . . -5-
Proposed Action . . . . . -5-
Riparian Restoration . . . . . -5-
Instream Restoration . . . . . -6-
Design Features of Proposed Action . . . . . -9-
Monitoring . . . . . -10-

Chapter III - Affected Environment . . . . . -11-
Stream Channels/Water Quality & Aquatic Resources . . . . . -11-
Soil . . . . . -12-
Vegetation . . . . . -12-
Botanical . . . . . -12-
Fisheries . . . . . -13-
Aquatic Species and Habitats . . . . . -13-
Special Status Fish . . . . . -13-
Wildlife . . . . . -14-
Riparian Habitats . . . . . -14-
Instream Habitats . . . . . -15-
Wildlife Species . . . . . -16-
Threatened and Endangered Species . . . . . -17-
Cultural Resources . . . . . -17-
Hazardous Materials and Solid Waste . . . . . -17-
Environmental Justice . . . . . -17-

Chapter IV - Environmental Consequences . . . . . -18-
Stream Channels/Water Quality & Aquatic Resources . . . . . -18-
Soil . . . . . -18-
Vegetation . . . . . -19-
Botanical Species . . . . . -20-
Fisheries . . . . . -21-
Wildlife . . . . . -22-
Cultural Resources . . . . . -27-
Hazardous Materials and Solid Waste . . . . . -27-
Environmental Justice . . . . . -27-

Chapter V - List of Agencies & Persons Contacted . . . . . -28-
Literature Cited . . . . . -29-

Appendices

Project Location Maps Environmental Justice . . . . . Appendix A
West Fork Smith River Watershed Restoration Plan - 1998 . . . . . Appendix B
Tables . . . . . Appendix C
Required Permits . . . . . Appendix D

## Chapter I - Purpose and Need for Action

### Purpose and Need

The Bureau of Land Management (BLM), in conjunction with other Federal agencies, is under direction by the Northwest Forest Plan to conduct Watershed Restoration projects to aid in the recovery of water quality, aquatic, riparian, and terrestrial habitats. Watershed analysis for the West Fork Smith River Subwatershed (USDI BLM 1997) has been conducted and the results documented. The following proposed projects are among several identified in these watershed analysis documents and are in conformance with the Aquatic Conservation Strategy Objectives as described in the *Record of Decision Standards and Guidelines for Management of Habitat for Late-Successional and Old-Growth Forest Related Species Within the Range of the Northern Spotted Owl* (USDA Forest Service and USDI Bureau of Land Management, 1994) (ROD).

Much of the instream and riparian habitat within the West Fork Smith River watershed has been degraded by a number of land management activities including splash dam operations, road construction, timber harvest, and the removal of large woody debris (LWD) from stream channels and adjacent riparian areas. Intense fires, both natural and human caused, have also been a major factor affecting the current habitat conditions. There is evidence of at least six different fires that burned all or part of this subwatershed. These fires occurred from 1651 to 1892 with an average frequency of approximately 48 years (USDA Forest Service, 1997). The cumulative affects of these events have been to simplify stream channels and riparian habitats reducing the ability of these habitats to support native plant and animal species.

The Umpqua Resource Area proposes to undertake aquatic enhancement projects recommended for the West Fork Smith River Subwatershed as a result of the *West Fork Smith River Subwatershed Analysis First Iteration* (USDI BLM, 1997), hereby incorporated by reference. This analysis discusses the need for restoration within the subwatershed with regards to roads, riparian condition, in-stream habitat, and noxious weed management.

The purpose of this Environmental Assessment (EA) is to: 1) examine any potential environmental impacts that may result if the Proposed Action or any project alternative were implemented; and 2) document the decision making process involved in this proposed project. The BLM is funding enhancement projects in response to public concern and a commitment to safeguarding and restoring ecological sustainability of public lands through principles of ecosystem management. The primary goals of the projects planned under this environmental assessment are to restore, enhance, and maintain ecological functions and biological productivity on public lands within the West Fork Smith River subwatershed.

While only natural ecological processes operating over many decades can bring about full recovery of the instream and riparian habitats in the West Fork Smith River drainage, on selected sites certain management actions may help accelerate restoration of instream and riparian habitats. The projects proposed in this EA would help to restore some of the habitat complexity and diversity that existed prior to land management activities, and aid in the recovery of habitat components important to aquatic and terrestrial organisms dependant upon healthy riparian and aquatic environments for all or part of their life stages.

**Objectives**

The primary objective for silvicultural treatments of these riparian areas is to maintain or restore natural habitat components such as large conifer, hardwood trees, snags, and logs to degraded riparian habitats. Treatments focus on removing competing red alder through a combination of tree falling and girdling. The goal of these treatments is to restore riparian vegetative and structural conditions to mimic natural habitat conditions.

Riparian Silviculture Treatment Objectives

- increase growth and survival of conifer and hardwood species by reducing density of competing red alder
- retain and protect from damage existing snag habitat, down log habitat, and hardwoods (except red alder),
- create additional hardwood snag and down log habitat
- avoid significant reductions in stream shading increasing water temperatures
- minimize the need for of subsequent maintenance treatments

The primary objective for placement of instream structures is to begin restoring natural structural complexity to the degraded instream habitats of the West Fork Smith River. A combination of trees, root wads, and boulders would be used throughout the proposed reaches.

Instream Structures Treatment Objectives

- create sheltered habitats protected from high velocity stream flow
- create additional roughness, reducing overall water velocities
- create well distributed hiding cover for aquatic organisms
- create well distributed areas for deposition of gravel and cobble substrates, and organic materials
- trap and accumulate additional logs and other woody structure being transported downstream
- increase overall pool depths

By increasing the structural complexity of the stream system, habitat abundance, quality, and distribution would be improved for most of the native aquatic organisms.

**Aquatic Conservation Strategy**

The Aquatic Conservation Strategy (ACS) was developed to restore and maintain the ecological health of watersheds and aquatic ecosystems within them on public lands (ROD, Standards and Guidelines, April 1994). The proposed projects are designed to meet some of the ACS objectives, while not retarding or preventing attainment of the others. Some of the particular objectives the projects would meet include:

- Maintain and restore the distribution, diversity, and complexity of watershed and landscape-scale features to ensure protection of the aquatic systems to which species, populations, and communities are uniquely adapted.

- Maintain and restore the species composition and structural diversity of plant communities in riparian zones and wetlands to provide adequate summer and winter thermal regulation, nutrient filtering, appropriate rates of surface erosion, bank erosion, and channel migration and to supply amounts and distribution of coarse woody debris sufficient to sustain physical complexity and stability.

- Maintain and restore habitat to support well-distributed populations of native plant, invertebrate, and vertebrate riparian-dependent species.

The decision to be made in regard to this EA is to either:

1) Not implement the project (No Action).
or
2) Implement the project as described in this document (Proposed Action).

**Issues, Concerns, and Opportunities**

The issues, concerns, and opportunities arising from the proposed West Fork Smith River restoration project were developed by the Interdisciplinary (ID) Team assigned to this project, as well as by interested public parties and agency representatives who responded to public announcements. The principle issues identified through watershed analysis which drive the needs for watershed restoration in the West Fork Smith River are discussed in the following.

Instream habitat degradation is one of the major factors responsible for the decline in many stream-associated fish and wildlife populations, including the Endangered Coastal Cutthroat Trout, the Proposed Threatened Coastal Coho Salmon, and the Proposed Threatened Coastal Steelhead Trout. The West Fork Smith River and its tributaries have been altered by road construction, timber harvest, and splash damming. Not only have these activities degraded the quality of instream habitats, they are most likely responsible for stream bank erosion, widening of the channel, and overall decrease in water depth. In certain locations the addition of structural components (coarse woody material and boulders) may help accelerate the restoration of instream habitat complexity and key habitat components which support native fish and wildlife species.

In the Oregon Coast Range, riparian habitats which are the source for most of the coarse woody material entering the stream channel play a key role in maintaining and restoring the structural complexity of instream habitats. Additionally, there are many wildlife species which depend heavily on riparian habitats for food, shelter and reproduction. Most of the late-successional forests along the West Fork Smith River and its tributaries were greatly altered during road construction and timber harvest. The natural mixed hardwood and conifer forests have been replaced by young regenerating conifer plantations, and red alder dominated forests with understories dominated by salmonberry which often support only a few suppressed conifer. Limited treatments such as selectively cutting or girdling alder to release suppressed conifer on certain sites may help restore structurally complex mixed hardwood and conifer riparian habitats important to associated wildlife species. Additionally, release of suppressed conifer trees should help ensure a source of large coarse woody material to provide future instream structural habitat.

**Geographical Area**

The Smith River watershed lies in the northwest portion of Southwestern Oregon. The analysis area is within portions of both Lane and Douglas counties. The watershed occupies 139,567 acres of land and is bounded on the north by a series of high ridges. Goodwin Peak (elevation 1,826 feet) resides on the northwest corner through Mt. Grayback (elevation 2,255 feet) to Roman Nose (elevation 2,856 feet) located in the northeast corner of the watershed. The Umpqua River lies just below a ridge system along the southern boundary of the watershed.

Fifty-six percent of the watershed is managed under federal ownership. Thirty percent of that federal land is managed by the USDA - Forest Service and 26% is managed by the USDI - Bureau of Land Management. Two percent of the area is managed by other government agencies including the State, County, and other federal lands. The remaining 42% of the watershed is under private ownership with 71% of the private land in private industrial land use. The proposed project would occur on lands or roadways presently managed and controlled by the BLM. The project areas are shown on maps contained in Appendix A.

Much of the instream and riparian habitat within the West Fork Smith River watershed has been degraded by a number of land management activities including splash dam operations, road construction, timber harvest, and the removal of large woody debris (LWD) from stream channels and adjacent riparian areas. Intense fires, both natural and human caused, have also been a major factor affecting the current habitat conditions. There is evidence of at least six different fires that burned all or part of this subwatershed. These fires occurred from 1651 to 1892 with an average frequency of approximately 48 years (USDA Forest Service, 1997). The cumulative affects of these events have simplified stream channels and riparian habitats.

Although alder and other hardwood species naturally occur in riparian areas, ground and vegetation disturbances resulting from land management activities have increased their abundance considerably in the proposed projects reaches. This proliferation of alder has suppressed the reestablishment of conifer species, which were formerly abundant and provided a diverse array of habitat types for both aquatic and terrestrial life.

**Permits, Licenses, and Entitlements Necessary to Implement the Project**

Prior to any ground disturbance, the BLM fisheries biologist involved with the planning and implementation of the stream enhancement project would apply for a Division of State Lands Wetland Enhancement/Restoration General Authorization permit which would also be reviewed by the Oregon Department of Fish and Wildlife. This permit authorizes and provides guidelines for completing instream restoration work and would be obtained prior to the beginning of project implementation.

## Chapter II - Alternatives Including the Proposed Action

### No Action

Under this alternative, no projects would be completed at this time, and funding would be redirected to other Jobs-in-the Woods projects. The benefits of the proposed restoration projects would not be realized.

### Proposed Action

Riparian Restoration (RR)

1. Individual Conifer Release & Stream Side Alder Cutting

   On sites RR #2 and #4 - #6 (see location maps, Appendix A - 2), individual conifers would be released by selectively cutting or girdling competing alder. Conifers released would range from saplings to trees 15" diameter at breast height (DBH). Approximately 1,150 alders would be cut (Table 1). Alders would typically not be cut or girdled around conifer which have already well overtopped the alder canopy. Alder would be girdled rather than cut when the felled trees would likely damage existing conifer, large hardwoods are selected to provide snag habitat, or in areas where a gradual increase in light levels is desired. However, alder would not be girdled within 50 feet of any open road. Individual alder trees adjacent to creeks and rivers would be felled into the stream channel margins to function as coarse woody instream structure. Directly adjacent to existing paved roads and selected skid roads, some of the alder marked for cutting would be identified for sale and removal. The remaining alder would be cut and left on site to provide down log habitat.

2. Alder Conversion

   On site RR #3, all red alder would be cut, and approximately 90% would be made available for sale and removal from the site. The remaining alder logs would be retained on site as down log habitat. The few bigleaf maple and conifer presently on site would be retained, and protected from damage to the greatest extent practical. All vegetation within approximately 25 feet of the intermittent stream on the east end of the unit would be retained. The salmonberry and vine maple would be slashed and the unit planted with a combination of Douglas-fir and Western redcedar. One or more manual maintenance treatments such as chainsaw slashing of competing shrubs and red alder would be required to ensure conifer are successfully established on this site. Target stocking for this site is 150 conifers per acre at age 30, and conifers do not need to be evenly spaced or well distributed. It is not expected or desired that this site support conifer in densities typical of commercial plantations of similar ages. Instead, the intent is to reestablish a conifer component within an area converted to almost exclusively red alder by past management actions, creating a mixed conifer hardwood stand.

| Table 1 - Riparian Restoration | | | | | | |
|---|---|---|---|---|---|---|
| Unit # | Site Acres | # trees | | | | |
| | | Fall and Remove | Fall and Leave | Girdle | Fall into Stream | Total Trees |
| RR #1 | 3.5 | Unit Dropped | | | | |
| RR #2 | 17.0 | 77 | 133 | 26 | 33 | 269 |
| RR #3 | 3.5 | Alder Conversion | | | | |
| RR #4 | 6.9 | 58 | 5 | 0 | 0 | 63 |
| RR #5 | 7.0 | 67 | 96 | 25 | 10 | 198 |
| RR #6 | 2.5 | 133 | 340 | 6 | 10 | 489 |
| **Total** | **40.4** | **335** | **574** | **57** | **53** | **1019** |

Instream Restoration (ISR)

1. Stream side tree cutting

On all ten instream restoration sites, individual trees adjacent to creeks and rivers would be felled into the stream channel margins to function as coarse woody instream structure. A total of approximately 670 trees would be cut on all 10 sites (Table 2). For all sites except ISR #5, the majority of trees proposed for cutting are red alder, with a small number of conifer and other hardwoods making up the remainder. Trees selected for cutting would range in size from 6"-60" DBH, with most alder 8"-15" DBH. The size of selected conifer trees would typically be larger, because they are intended to function as “key pieces” to anchor and collect other coarse woody structure. Trees selected for cutting would typically be felled to leave a sizable portion of the trunk on the bank helping to anchor the log in place, or be incorporated into boulder clusters or weirs also being installed. To insure the proposed actions do not substantially impact other wildlife species and habitats, the following design features would be included in all riparian restoration projects:

- Sufficient trees would be retained at all sites to provide shade to the stream avoiding significant increases in stream temperature.
- All conifer trees large enough to provide potential marbled murrelet nesting habitat which are proposed for cutting or directly affected by cutting of adjacent trees would be reviewed by USFWS representatives during formal consultation for this project, and cutting of these trees would be conducted only if the Biological Opinion authorized these actions.
- Any conifer large enough to provide potential marbled murrelet nesting habitat would be climbed and searched for marbled murrelet nests by qualified individuals prior to cutting.

2. Boulder cluster placement

Approximately 400 boulder clusters would be placed at sites ISR #1-#3, #5 & #7-#9 in association with coarse woody structures, rock weirs, and cut trees to add structural complexity to the stream channel. Clusters would consist of 3-6 boulders each, with boulders ranging in size from 0.5 to 0.75 cubic yards each. The size and location of each boulder cluster, and the number of clusters proposed for each site would be determined based upon the site specific hydrological characteristics and habitat conditions, but boulder clusters would be placed primarily in the active stream channel margins rather than in center of the strongest currents. The number of boulder clusters proposed for each site are identified in Table 2, and the proposed locations are shown in Appendix A: 2-8.

3. Coarse woody structure placement

Approximately 370 root wads or a similar volume of other coarse woody structures would be placed at sites ISR #1-#3, #5 & #7-#9 in association with boulder clusters, rock weirs, and cut trees to add structural complexity to the stream channel. Root wads and short logs would be anchored with rocks, or cabled to bedrock, trees, or boulders as needed. The size and location of each structure, and the number of structures proposed for each site would be determined based upon the site specific hydrological characteristics and habitat conditions, but these structures would be placed primarily in the active stream channel margins rather than in center of the strongest currents. The number of coarse woody structures proposed for each site are identified in Table 2, and the proposed locations shown in Appendix A: 2-8.

4. Boulder weir construction

Three new full spanning boulder weirs would be constructed at site ISR #5, with boulders ranging in size from 0.5 to 0.75 cubic yards each totaling approximately 400 cubic yards. Two weirs would be designed as offset downstream “V’s,” while the third would be a straight diagonal. These weirs would be constructed in association with coarse woody structures, boulder clusters, and cut trees to add structural complexity to the stream channel (Table 2). The proposed location for each weir and other associated structures are shown in Appendix A: 2-8.

5. Dips in existing boulder weirs

Dips would be created in the top of three boulder weirs at site ISR #3. These dips would be created by shifting or removing a total of approximately 40 of the top boulders to vary the surface height of the weir. Boulders removed would be placed at other locations along the top, or in small clusters immediately down stream from the weir. All boulder weirs would remain intact and full spanning.

6. Access road construction

Two new temporary roads totaling 550 feet would be constructed at sites ISR #5 & #9, to provide equipment access (excavator and dump trucks) for placement of new boulder weirs, boulder clusters, rootwads, and logs. Roads would be constructed to the minimum width and length needed to provide access to the stream site. The locations for the proposed roads would require cutting approximately 5 red alder trees. The proposed locations for new access roads are shown in Appendix A: 6.

7. Access road rehabilitation

Following completion of instream construction work, a total of 4680 feet of new and existing access roads would be ripped and seeded at sites ISR #1, #3, #5 & #7 - #9. Road surfaces would be treated using multiple passes with a subsoiler to reduce compaction in the first 30" of soil. Following ripping, mulch and/or organic material (slash, logs, etc.) would be spread on the ripped surface, and the roadbed seeded with native grass seed, if available; or the District's approved grass seed mix. At all access points, each road would be blocked with a tank trap and/or rock barrier to prevent future vehicle access. The locations for new and existing access roads are shown in Appendix A: 2-8.

**Table 2 - Instream Restoration**

| Instream Site | Site Length | # trees fall into stream | | | # trees to climb | # boulder clusters | # rootwads / other CWM | # new weirs | weir gaps | new access road (feet) | rehab access road (feet) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | alder | conifer | maple | | | | | | | |
| ISR #1 | 0.18 | 11 | 1 | 1 | 0 | 65 | 70 | 0 | 0 | 0 | 510 |
| ISR #2 | 0.26 | 14 | 12 | 0 | 0 | 105 | 35 | 0 | 0 | 0 | 0 |
| ISR #3 | 0.17 | 14 | 0 | 0 | 0 | 85 | 50 | 0 | 41 | 0 | 900 |
| ISR #4 | 0.56 | 86 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| ISR #5 | 0.82 | 6 | 28 | 0 | 10 | 65 | 50 | 3 | 0 | 400 | 400 |
| ISR #6 | 0.28 | 20 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| ISR #7 | 0.19 | 36 | 0 | 0 | 0 | 21 | 42 | 0 | 0 | 0 | 510 |
| ISR #8 | 0.42 | 83 | 0 | 0 | 0 | 28 | 53 | 0 | 0 | 0 | 2210 |
| ISR #9 | 0.34 | 69 | 7 | 0 | 0 | 43 | 66 | 0 | 0 | 150 | 150 |
| ISR #10 | 1.00 | 242 | 26 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Total** | **4.22** | **581** | **74** | **1** | **10** | **412** | **366** | **3** | **41** | **550** | **4680** |

**Design Features of Proposed Action**

- # Minimize the need for subsequent treatments to achieve habitat objectives and protect the existing resources.
- # Riparian project work would be scheduled to avoid disturbances to special status species (marbled murrelet and northern spotted owl).
- # Climb all potential nest trees for Marbled Murrelets
- # The timing of instream work would comply with the timing restrictions established by the Oregon Department of Fish and Wildlife.
- # Instream restoration sites located downstream would occur first. This would help promote the collection of debris within the streams and collections would gradually continue to build upstream. Projects would be initiated in the summer of '98 (Sites 1,2,3,4,& 6) and continue through the year 2000.
- # New access roads would be designed to minimize ground disturbances.
- # Following construction activities on both new and existing roads, exposed soils would be revegetated to minimize the potential for sediment release, and the roads blocked to deter vehicle travel. Disturbed soils would be seeded with native vegetation if available.
- # Standard vehicle washings are recommended to prevent the introduction and/or spread of noxious weeds. To limit the number of vehicle washings needed, it is recommended that project areas be worked first from non-infested areas, to light infestations, to medium, and finally to heavy infestations.
- # Noxious weeds on the road system near to project areas would be pulled from the ground.
- # Ground disturbance at the original plant site(s) would be kept to a minimum.
- # Recovering of the project area with soil from another site is not acceptable unless the fill is well buried. Care needs to be taken in moving the soil because the seeds within the soil are likely to spread.
- # Monitoring measures would be implemented to document compliance with applicable Best Management Practices (BMP's).
- # As much as feasible, equipment travel within stream channels would be restricted to shallow and bedrock areas where the likelihood of injuring or killing aquatic organisms is low.
- # Equipment working in and adjacent to stream channels would be prepared to contain fuel or oil spills (hazardous materials) with approved methods and materials, in conjunction with the District Spill Plan and State of Oregon Administrative Rules governing spills and releases.

- # Large conifers placed in the stream channel would originate from the adjacent riparian area, and would be felled with a chainsaw.
- # Boulders and rootwads would be placed by heavy equipment (excavator and/or backhoe).
- # Root wads would be cabled to boulders where appropriate.
- # Rock would come from Roman Nose Quarry

**Monitoring**

- ♦ Spawning surveys would be conducted to document structure utilization by adult salmonids.
- ♦ Implementation monitoring would be conducted to evaluate the stability of log and woody debris placements in subsequent years following structure placement.
- ♦ The alder conversion sites would be monitored to assess the need for site maintenance to minimize competition with other vegetation.
- ♦ Stocking surveys and manual maintenance inspections would be conducted at all proposed sites the first, third, and fifth years upon completion of activities.

## Chapter III - Affected Environment

This section describes the environmental components that could be affected by the Proposed Action, if implemented. This section does not address the environmental effects or consequences, but rather serves as the baseline for the comparisons in Chapter IV - Environmental Consequences.

A review of the existing environment shows that the following list of critical elements of the Human environment are not present or would not be effected by these projects; therefore they will not be addressed in this EA:

- Air quality
- Area of Critical Environmental Concern
- Farmland, Prairie/Unique
- Wild and Scenic Rivers
- Wilderness

### Stream Channels, Flood Plains, Water Quality & Aquatic Resources

The West Fork Smith River is a sixth order stream system which includes the mainstem river and five major tributaries (Coon, Crane, Moore, Beaver and Gold Creeks). The mainstem is a Rosgen C type channel while Moore and Beaver Creeks are B type channels (Rosgen, 1994). The C type channels are generally mid to higher order, alluvial, broader, valley reaches characterized by relatively low gradients (<2-4%), meandering, point-bar, riffle/pool channel development. These systems are not entrenched, have high width/depth ratios, high sinuosity, and have extensive floodplain development. The C type channels are lower velocity systems that dissipate stream energy through the channel geometry and meander pattern. These systems tend to be relatively stable in bedrock/boulder controlled channels like the West Fork. The B type channels are generally the mid order, moderate relief reaches characterized by gradients of 2-4%. These are rapid dominated, pool limited systems that are moderately entrenched, have a moderate width/depth ratio, moderate sinuosity and have limited floodplain development. The B type channels dissipate stream energy by maintaining stream velocities and resistance to flow provided by roughness. These systems tend to be stable throughout the
range of substrates.

Past activities such as splash damming, stream cleaning, road building, and timber harvest activities have altered channel complexity and types. A road parallels each of these channels. The construction of the roads not only confined the channels but removed a great deal of riparian vegetation including large trees in the floodplain that eventually would have contributed large woody debris to the systems. These channels have been changed from complex, debris ridden, gravel/cobble systems to bedrock dominated, simplified system that are lacking substrate, large debris and varied instream velocities.

**Soil**

The West Fork Smith River drainage is located in the Coast Range physiographical province. The restoration sites are located within the Quaternary alluvium geological unit on flat lying floodplains. The geological materials associated with the soils of the area are developed from the Tyee Formation. The Tyee Formation is composed of rhythmically bedded sandstone and siltstone and tends to have high ground water in some areas, rapid runoff, and steep slopes.

The soils found within the West Fork of the Smith River Restoration Sites are the Kirkendall-Nekoma complex, the Damewood-Bohannon-Umpcoos complex, the Preacher-Bohannon-Blachly complex, the Preacher loam and the Bohannon-Preacher-Damewood complex. Specific soil data can be obtained from the February 1994 Douglas County Area, Oregon Soil Inventory. Additional soil information can be found in the analysis file.

**Vegetation**

The majority of the streams and their accompanying riparian zones are dominated by red alder with a minor component of big leaf maple, and suppressed conifer in the understory. The alder inhabited the site following logging, road construction, and fire activity due to its high success rate as a pioneer seed species on disturbed sites. It managed to achieve dominance over other tree and brush species found in the area. Its rapid growth allowed for quick canopy closure which has produced severe shading for the conifer species that require higher light levels to survive. The understory conifers are composed primarily of Douglas-fir, Western hemlock, and Western redcedar that range in height from approximately 3 to 35 feet tall. There is also a variety of brush species which includes salmonberry, vine maple, huckleberry, and swordfern.

Noxious Weeds

Noxious weeds are present throughout the resource area with the species of most concern being Scotch and French brooms. These weeds occur along roadsides and in other disturbed areas and are seed sources for infesting areas currently uninfected, especially freshly disturbed sites.

Port-Orford-Cedar

The proposed project areas are not within the natural range of Port-Orford-cedar. In addition, no Port-Orford-cedar is known to occur on or near any of these restoration sites.

**Botanical**

There are no documented occurrences of Special Status plant species or Survey and Manage Component 1 in the vicinity of the proposed projects. Habitat is present for some of the above mentioned species. See Table 1 in Appendix C - File for Special Status species which may occur in this area and Survey and Manage prefield review.

**Fisheries**

Aquatic Species and Habitats

The West Fork Smith River is inhabited by coho and chinook salmon, steelhead and cutthroat trout, four sculpin species, brook lamprey, amphibians, and numerous other aquatic invertebrate species.

All salmonid fish species occurred in the drainage prior to settlement except for chinook salmon, which were introduced in the drainage in the 1980s. Chinook are limited to the mainstem and it is thought that this species does not compete for space or food with other salmonid fishes due to their life history patterns.

Little information is available concerning historical instream habitat conditions. A limited habitat survey from the summer of 1957 states that habitat suitable for salmonid spawning existed in only 22% of the stream system, but this estimate could be low because spawning areas are difficult to identify during low flow conditions. No other habitat information was contained in the survey.

Surveys from 1994 indicate that the lower seven miles of the mainstem offer minimal amounts of habitat to aquatic organisms, while the upper 8 miles provides higher quality habitat. The habitat in the tributaries to the West Fork Smith River is superior to that of the mainstem, and it is here that the majority of aquatic production occurs.

Special Status Fish

The following list summarizes the special status fish species known to occur within the West Fork Smith River basin:

- Umpqua Basin coastal cutthroat trout below barriers to fish passage were listed as Threatened on August 9, 1996.
- Oregon Coast coho salmon, which encompasses the range of this species north of Cape Blanco, were designated as Candidate species by the National Marine Fisheries Service on April 25, 1997.
- Oregon Coast steelhead trout are currently a candidate species for potential listing under the Endangered Species Act (ESA).
- Pacific lamprey are listed as a vulnerable species in Oregon.

The National Marine Fisheries Service (NMFS) has determined that compliance with the Standards and Guidelines of the Northwest Forest Plan (NFP), and land management activities that promote attainment of ACS objectives, would ensure that BLM's land management practices will not threaten the continued existence of the Umpqua Basin cutthroat trout, Oregon Coast coho salmon, or Oregon Coast steelhead.

Through informal consultation with NMFS in accordance with section 7 (a) (2) of the Endangered Species Act, and its implementing regulations, 50 CFR Part 402, the project types being proposed in this EA were determined to be actions which may effect, likely to adversely affect (LAA), however, instream enhancement projects are considered as beneficial LAA actions. Incidental take for the Proposed Action is authorized by the U.S. National Marine Fisheries Service under the March 18, 1997 Biological opinion and Conference Opinion and no further consultation is required.

In accordance with Section 7(a) of the Endangered Species Act of 1973 as amended (ESA), the Proposed Action has been referred for informal and formal consultation where appropriate to the U.S. Fish and Wildlife Service and the U.S. National Marine Fisheries Service to seek concurrence with recommended determinations.

**Wildlife**

Riparian Habitats

1. Riparian Restoration Sites #2 & #4 and Instream Site #4

These sites are located adjacent to Crane and Moore creeks, 4th and 5th order streams respectively. Prior to harvesting timber and building roads along these two creeks, the riparian habitat supported a vegetative and structurally complex overstory of scattered large conifer, mixed with large bigleaf maple and red alder. Conifer were scarce in the first 150' from the stream bank, but were well represented beyond this distance. Surrounding the riparian zones were large, patchy stands of mature and late-successional forest. The open nature of these forests allowed a complex shrub and herbaceous layer to develop. The large conifer and hardwood provided a source of large, high quality snags and down logs for both the instream and riparian habitats.

In the 1950's, nearly all the existing riparian habitat and adjacent uplands along both creeks were cut during timber harvest and road construction, and replanted with Douglas fir in 1960. At both sites, red alder now dominates the overstory in 150' wide bands along the creek beds. A few scattered conifer 6-15" DBH are present within the alder dominated sections. Additionally, a small number of cedar saplings and seedlings are establishing under the existing alder stands. Most of the land adjacent to these narrow hardwood dominated bands on both sides of the creeks support well stocked conifer plantations.

2. Riparian Restoration Sites #3, #5 & #6

These sites are located along the north side of the West Fork Smith River which is a large 6th order stream. Prior to harvesting timber, operating splash dams, and building the road along this river, the riparian habitat was likely vegetatively and structurally very complex. The low lying flood plains subject to frequent disturbance were dominated by red alder, salmonberry, bigleaf maple, vine maple, and cherry. At the interface between the flood plains and upland areas, large, well established hardwoods (bigleaf maple, alder, and cherry) dominate the site with small patches of young, mature, and late-successional conifer scattered throughout the area. Surrounding the riparian zones was a fire established mosaic dominated by young, mature, and late-successional conifer in varying densities, with patches of hardwoods and shrubs well represented. The open nature of these forests allowed a complex shrub and herbaceous layer to develop. The large conifer and hardwood provided a source of large, high quality snags and down logs for both the instream and riparian habitats.

The operation of two splash dams during the late 1800's and early 1900's (WA), construction of the West Fork Smith River road in the late 1950's, followed by timber harvesting and replanting in the 1960's substantially altered riparian habitat conditions. The large conifer and bigleaf maple have been eliminated from most of the riparian areas along the West Fork Smith River. Currently, most areas close to the river and the road support stands of mixed hardwood and conifer with the conifers ranging from 4" to 20" DBH. These mixed hardwood and conifer stands are surrounded by dense conifer dominated plantations which have regenerated after logging and planting in the late 1950's and early 1960's.

Instream Habitats

1. Instream Restoration Sites #1-#3, #5 & #7-#10

These sites are located along the north side of the West Fork Smith River which is a large 6th order stream. Prior to splash dam operations which occurred on this river from the late 1800's through about 1925, instream habitats were highly complex. The West Fork Smith River was rich in gravel and cobble sediments as well as coarse wood. Large logs and log jams were likely abundant through the entire river, serving a variety of purposes. The logs and jams within the channel provided areas of turbulent flow and differing water velocity, encouraging deposition and retention of sediment in association with these structures and creating protected sites with low water velocity.

The splash dam operations of the late 1800's and early 1900's (WA), followed by cutting of riparian conifer and hardwoods during timber harvest in the 1960's substantially altered instream habitat conditions. All existing logs and jams were removed from the channel to facilitate river transport of timber. The repeated release of impounded water and logs from the splash dams scoured centuries of accumulated sediment from the stream channel, leaving behind the simplified habitats of a bedrock dominated river bed. Cutting in the 1960's of nearly all the large conifer and hardwoods from the stream banks and riparian zones eliminated opportunities for recruitment of new logs and jams, further delaying instream habitat recovery. Boulder weirs designed to encourage sediment deposition have been built in several reaches, but instream habitats in the West Fork Smith River remain bedrock dominated and ecologically simplified.

2. Instream Restoration Sites #4 & #6

These sites are located along Moore and Beaver Creeks, both 5th order streams with narrow flood plains constrained by steep slopes. Prior to harvesting timber and building roads along these creeks, instream habitats were highly complex. These creeks contained abundant gravel, cobble and large logs. In the 1960's and 1970's timber was harvested all the way to the stream banks along Moore Creek (Site #4) and the upper portion of Beaver Creek, eliminating the source of large logs providing stream structure. Without an input of new down logs during the last 30 years, instream habitats conditions in these creeks have degraded. While gravel and fine substrates are still abundant in these creek, much of the original wood has become buried or decomposed and without input of new logs, instream habitats have become simplified. However, in contrast to Moore Creek a small portion of the riparian habitat on the east side of lower Beaver Creek still supports large conifer and hardwoods. Due to continuing input of logs, instream habitats in this part of the creek are much more complex.

Wildlife Species

Due to past management actions, the areas proposed for treatment currently provide only limited habitat for many of the wildlife species native to the West Fork Smith River and its tributaries. However, if aquatic and riparian habitats are restored, this river system should be capable of supporting most native wildlife species. Two mammals, the river otter and the beaver, depend on large streams and rivers such as the West Fork Smith River for their primary habitat, obtaining nearly all their requirements from within the stream channel and associated riparian habitat. For

river otter, habitat quality is largely dependent on the availability of complex stream habitats which support abundant fish and invertebrates on which they prey. Beaver typically select river and stream reaches where water velocity is low to moderate (reaches which have a low gradient and/or are structurally complex), and forage species such as willow or salmon berry are abundant.

A variety of stream associated amphibians including Pacific Giant salamanders, Southern Torrent salamanders, Tailed Frogs and Red-legged frogs are expected to inhabit the proposed treatment sites. The populations of these species are small, concentrated in tributaries and small portions of the mainstem where gravel, cobble and coarse woody material have been redeposited since splash damming and stream cleaning practices were stopped. Pacific Tree Frogs, Western red-backed, and Dunn's salamanders are likely present in the stream margins and riparian habitats where down logs and rocks are abundant. All these species live and forage in the stream channel or along the margins, require standing or moving water for reproduction, and most use the channels and margins to disperse and recolonize other habitat sites.

Although the native bird species are primarily terrestrial, many depend on aquatic species for food. The American dipper, spotted sandpiper and several species of waterfowl feed primarily on aquatic macro-invertebrates inhabiting the stream bottoms and margins. Larger wading birds such as Great Blue and Green-backed herons and many waterfowl forage on fish. In addition, most of the aquatic macro-invertebrates which reside in these streams metamorphose into flying insects which are the major diet of most insectivorous birds and bats.

At least 122 bird species on the Coos Bay District are closely associated with riparian and wetland habitats, most of which use these area for shelter, foraging and nesting. The complex mixed stands of large hardwoods, conifers and shrubs of forested riparian areas provide abundant nesting and foraging opportunities for many species. Many of the shrub and forb species found in the understory of these mixed stands produce fruits or mast crops which serve as key food sources for birds and mammals.

A variety of terrestrial mammals are also closely associated with instream and margin habitats. Species such as racoon, mink, marten, bears, and bobcats typically forage along streams and rivers, feeding on fish, crayfish, macro-invertebrates, and other species drawn to stream side habitats. This is especially true when spawning anadromous fish die, providing an abundant protein source utilized by a wide variety of species.

Threatened and Endangered Species

Seven of the proposed project sites are within 0.25 miles of occupied marbled murrelet sites, seven are within 0.25 miles of unsurveyed suitable marbled murrelet, and four are within 0.25 miles of spotted owl nest sites (see Appendix C - Table 1). Activities at these sites would be conducted within the seasonal and daily timing restrictions established in the USFWS Biological Opinion (No. 1-7-98-F-079). There are no known nest sites or activity centers for other threatened or endangered species in the vicinity of the proposed project sites.

**Cultural Resources and Native American Religious Concerns**

Locations for these proposed actions are within the stream channel and on adjacent terraces. These also are localities where potentially significant cultural activities took place in the past, and where evidence of such activities might still remain.

As discussed in the West Fork Smith River Watershed Analysis (1997), the Lower Umpqua (or Kalawaset) tribe are reported to have utilized this area for at least several thousand years. River terraces are potential locations of temporary camps, which were used seasonally as bases for hunting, fishing, gathering and other forest activities. Although prehistoric camp locations are not reported on any terraces proposed for riparian enhancement projects, archeological surveys have not been previously conducted in these areas. Reconnaissance-level archeological survey was conducted during February, 1998. Survey did not reveal the presence of prehistoric cultural resources in project areas.

Recorded evidence of historic use of this area is confined to several homestead structures and an instream splash dam (see WSA). Cadastral maps dating from the 1890s record several homestead structures within or in the vicinity of proposed project areas. The recorded splash dam also is within an instream project area. Evidence of this structure was not located during the reconnaissance-level survey.

**Hazardous Materials and Solid Waste**

Site surveys of the proposed project locations indicate no concerns exist. Some inconsequential dumping of solid waste (household garbage) is evident, but does not constitute a threat to human health or the environment.

**Environmental Justice**

There are no identified significant adverse human health or environmental effects associated with this EA for low income or minority groups.

## Chapter IV - Environmental Consequences

This section provides the scientific and analytic basis for comparing the No-Action and Proposed Action alternatives described in Chapter II. The potential short- and long-term impacts to the affected resources are discussed here for each project type, as it relates to the issues for each alternative. No irreversible or irretrievable commitment of resources have been identified for either of the alternatives.

This section describes the alternatives by affected environment.

### Stream Channels, Flood Plains, Water Quality & Aquatic Resources

No Action

If no action is taken the channels will continue to evolve and will at some point in the future achieve stable states and natural levels of complexity.

Proposed Action

The direct effect of the proposed action will be increased channel roughness resulting in varied instream velocities. A short term increase in turbidity within the project area will result from disturbing the channel substrate. However, due to the low flows, any material causing turbidity will not be held in suspension and transported downstream very far before settling back out. Water temperatures should not be effected since stream shading will not be significantly altered.

The boulders, root wads, logs, and weirs would dissipate stream energy by providing channel roughness (resistance to flow) thus leading to slower and/or more varied instream velocities, backwater and scour pool development, and substrate retention areas. Low summer flows and water temperatures may also be positively impacted by more evenly distributing flow throughout the year. In general, the proposed actions will accelerate development or restoration of instream habitat complexity.

### Soil

No Action

No direct, indirect, or cumulative effects are anticipated.

Proposed Action

The direct and indirect effects of the proposed action would be the construction of 400 feet of new access road to ISR #5. Previous restoration activities in the area generated the construction of access roads. The proposed project within ISR #1 would re-open 510 feet of road, ISR #3 - 900 feet of road, ISR #7 - 510 feet of road, and ISR #8 - 2210 feet of road. The removal of vegetation such as trees, brush and ground cover plants would increase sedimentation at very minimal levels due to the relative flatness of the area. New road construction would create compaction of the soils which leads to losses in plant growth. On previously constructed roads, increases in soil

compaction and plant loss would most likely occur. Subsoiling of the impacted areas will reduce the amount of recovery time necessary for restoration of the soils. Seeding and mulching will replenish lost organic matter which is vital to the restoration of the soils. Seeding and mulching will replenish lost organic matter which is vital to the reduction of soil compaction and renew fertility. If native seed is unavailable, non-native seed would be used. Non-native plant species already exist in the area and additional introduction may genetically impact native plant species.

The cumulative effects of the proposed action would be the loss of soil fertility on those areas impacted by the construction of access roads.

**Vegetation**

No Action

The vegetation within these riparian zones could continue to grow under the current conditions with only minor changes for several more decades. As the age of the alder stands progress, they would eventually begin to fall apart at approximately age 80. Bigleaf maple would likely remain in the stand for a much longer period. The existing understory salmonberry would receive more light that would promote its vigorous spread and could become the dominant vegetation in the riparian zone essentially blocking out other more desirable vegetation. Some understory conifers would continue to survive growing at extremely slow rates under the alder canopy taking advantage of available light as canopy gaps became available through the attrition of the dominant stand of alder. Other understory conifers would eventually die from a lack of adequate light as is evidenced by numerous dead conifer in all the stands. A no action proposal would preclude management of these riparian zones for the promotion of existing conifers currently suppressed by the alder.

Noxious Weeds

Noxious weeds within these proposed areas would continue to grow under current conditions. The establishment of these species would continue to spread at an unknown rate.

Port-Orford-Cedar

The proposed project sites are located outside the natural range of Port-Orford-cedar. No sites of Port-Orford-cedar are known to exist in or near to the proposed project areas, therefore there are no direct, indirect, or cumulative impacts.

Proposed Action

Under the proposed action for conifer release, a conservative amount of red alder and some big leaf maple clumps would be cut in attempt to provide added growing space to existing understory suppressed conifer in these riparian zones. Based on the extensive spread inherent in alder and maple crowns, it is expected that there could be some degree of damage to residual conifer related to the felling of these trees.

Hardwood Conversion

In the short term, the proposed project would change the overall current structure of the vegetation within the unit, but application of sound silvicultural practices would re-establish conifer species to help in attaining Aquatic Conservation Strategy objectives. The humus layer on the forest floor would be somewhat disturbed due to felling and yarding of alder and follow-up piling and burning. The removal of the alder stands would result in increased heat and light to reach the forest floor, but impacts would be lessened once brush and hardwood resprout in addition to the planting of conifer seedlings.

Noxious Weeds

No direct or indirect effects are anticipated for noxious weeds. The design features should help to prevent proposed management actions from accelerating the spread or establishment of noxious weeds. The cumulative effects are unknown. No substantial change would have neither a positive or negative effect.

Port-Orford-Cedar

The proposed project sites are located outside the natural range of Port-Orford-cedar. No sites of Port-Orford-cedar are known to exist in or near to the proposed project areas, therefore there are no direct, indirect, or cumulative impacts.

**Botanical**

No Action

No direct or indirect effects are anticipated. Not felling selected conifers will allow these trees to become habitat for lichens and bryophytes which require old growth conditions. Conversely, in the areas not slated for alder conversion/conifer release, the alder may prevent conifers from growing to an age to become suitable habitat for many species of lichens and bryophytes.

Proposed Action

Trees selected for falling include both conifers and hardwoods. Adjacent trees and stands probably have similar epiphytic species richness and abundance as the trees selected for falling. Tree falling will cause some ground disturbance, in addition to causing a loss of habitat for the epiphytic species in the canopy of the individual trees being felled.

The boulder clusters, weirs, and rootwads will cause some disturbance to common plants in and around the water. These species are typically abundant and will recolonize disturbed areas. Disturbance to the riparian area will also result from any roads that are pioneered to position the equipment next to the river.

As the felled trees will be left in place, the action is similar to disturbances caused by nature, such as windthrow or natural mortality. As the logs decay, they will provide habitat for species that utilize down wood.

In the areas selected for alder conversion or conifer release, the alder which are cut or girdled will allow more light to the understory and/or forest floor. This may initially result in an increase of brush growth and decreased surface moisture in the summer months. However, as conifers increase in size, light will decrease and shade tolerant plants will increase.

Seeding the disturbed areas with grasses may slow the spread of plants currently present into the disturbed area. Disturbances in this area from previous projects which were seeded still show a lack of colonization by native species after a few years.

The proposed action will eventually lead to a riparian area that has many old growth conifers and snags, which will provide habitat to species which grow in old forests, both in the canopy and on down woody material. As many riparian areas near the project area are dominated by hardwoods, the conversion of some areas to conifers will be beneficial to many species.

**Fisheries**

No Action

The benefits of the proposed restoration projects would not be realized under the No Action Alternative, and no projects to benefit fish populations would occur in the West Fork Smith River on BLM administered lands in the near future.

Proposed Action

Aquatic Species and Habitats

The anticipated environmental effects of the Proposed Action on aquatic species and their habitats are:

- The placement of weirs, logs, trees, boulders, and rootwads will encourage substrate deposition and alter flow patterns, resulting in a diversity of velocities within the treated stream channels.
- Boulder clusters, felled trees, and rootwad clusters will aid in trapping and retaining organic debris moving downstream to provide nutrient inputs and a variety of habitats and food sources.
- The placed structures will provide cover and food sources for fish and other aquatic organisms during all flow stages.
- Boulder weirs and large logs will provide structure necessary to retain bedload and create riffle habitat for spawning and macroinvertebrate production.
- Increase pool depth and quality.

Special Status Fish

Incidental take associated with the stream enhancement projects is possible from short-term effects of turbidity and suspended sediment levels that could occur during structure placement and following the first rains after project completion. Instream construction activities inevitably result in the disturbance of substrates, however, it is anticipated that the project design features described above would minimize adverse effects to special status salmonids within the proximity of the project sites.

The cumulative effects of the Proposed Action would aid in the recovery of degraded instream and riparian habitats, as well as the aquatic and riparian-dependant species that depend on them. Although some short-term impacts could occur from structure placements, the benefits to aquatic species would out-weigh the anticipated affects.

**Wildlife**

No Action

Riparian Restoration Sites

The impacts associated with the proposed treatments would not occur. There would be no disturbance to Threatened or Endangered species, and damage to snags, down logs, or shrub species would be avoided. Additionally, all hardwood and conifer trees would remain on site, and those which die from suppression mortality would provide snag and down log habitat for associated wildlife species.

Young mixed hardwood and conifer stands have regenerated at all sites, but many of the conifer trees at these sites have been overtopped by hardwoods. Without treatment most of these conifer will eventually die from light competition and these stands would remain hardwood dominated until altered by a stand replacement event such as a very large wild fire. The canopies would remain shallow and structurally simplified. Large trees, snags, and logs would remain scarce, reducing the variety and abundance of wildlife habitats available. These hardwood dominated habitats would continue to provide some habitat values for wildlife, but the habitats available would be quite different from those of the mixed stands historically present on these sites.

Instream Restoration Sites

The impacts associated with the proposed treatments would not occur. There would be no disturbance to Threatened or Endangered species, and damage to snags, down logs or shrub species would be avoided. New road construction and short-term stream sedimentation would not occur. All hardwood and conifer trees would remain on site, and those which die from suppression mortality would provide snag, and down log habitat for associated wildlife species. No potential marbled murrelet nest trees would be harvested.

The aquatic habitats in the West Fork of Smith River and its tributaries which have been substantially altered by prior logging, road construction, and splash dam operations would remain simplified. Instream habitat complexity would continue to recover slowly over several centuries as the riparian forests mature, large conifer enter the stream channel, and large sediments are trapped by these structures.

Existing roadbeds would continue to recover gradually over 20 to 30 years, after natural processes reduce compaction of the surface soils sufficiently to allow native vegetation to reestablish.

Cumulative Affects

Due to the multiple resource management goals for public lands, and intermingled private lands, many of the natural ecological processes influencing aquatic and riparian systems have been altered, and would not be restored in the foreseeable future. A large part of the existing road network would likely remain, reducing the input of coarse wood and large sediment to the stream systems. Natural fire patterns would continue to be modified to protect homes, businesses, and commercial resources. Commercial forestry on private and public lands would continue to simplify the vegetative and structural complexity of many forest stands. If the instream and riparian sites continue to be protected, but restoration projects are not implemented, natural habitat recovery within the watershed would continue, but at a slower pace, extending the time required for many habitats and wildlife populations to recover.

Proposed Action

Riparian Restoration Sites

By conducting all tree falling and instream work in accordance with USFWS Project Design Criteria, disturbance impacts to any nesting marbled murrelets, spotted owls, or other threatened or endangered species located in the vicinity of the proposed project would be minimized.

1. Individual Conifer Release

The individual conifer proposed for release are currently overtopped by hardwood trees, and many would die from light competition without treatment, substantially reducing the conifer component within these mixed stands. Selective cutting or girdling of red alder and an occasional multi-stemmed bigleaf maple would provide additional light, enabling many of these conifer to survive and eventually overtop the hardwoods. By improving survival of the existing conifer, these riparian sites should develop into vegetative and structurally complex mixed conifer/hardwood forests with species compositions similar to pre-harvest conditions present in the 1950's. Additionally, there may be a small increase in growth rates of remaining hardwood and conifer trees due to reduced competition.

The opportunity to provide additional habitat structures, and the potential for damage to existing trees, snags and down logs were the two primary factors used to mark trees for specific treatments (cut and remove, cut and leave or girdle). Hardwoods marked for girdling should provide new snag habitat available for both primary and secondary cavity associated species, and a gradual input of additional down logs when these snags fall providing habitat for a wide variety of amphibians, small mammals, and invertebrates. Girdling would also minimize damage to conifers in locations where it would be difficult to fall hardwoods without damaging trees identified for release. Limiting removal of cut hardwoods to areas within 150 feet of existing access roads should minimize the impacts of yarding on existing vegetation, snags, and down logs and the associated wildlife species. Additionally, leaving all other cut hardwoods on site would provide valuable input of down log and instream habitat structures currently scarce in these areas. Habitat availability for the associated wildlife species should be substantially increased.

2. Alder Conversion

In unit RR #3, only a scattered few conifer remain. Cutting the red alder, while retaining any existing conifer and replanting with a mixture of Douglas-fir, Western redcedar, and hemlock would begin the process of restoring a conifer component to this stand, but would also substantially alter the existing habitat conditions. The overstory would be removed and the shrubs would be severely damaged during harvest and site preparation, but most shrubs should resprout and be well developed within 3-5 years. There are very few snags and down logs in this area, and damage to down logs from harvest should be more than offset by the retention of 10% of cut alder on site for habitat. Stand maintenance treatments (cutting shrubs and red alder) may be required to insure survival of planted conifer, but because maintenance treatments would only be initiated if conifer stocking was expected to drop below 150 conifer per acre, these stands should develop into a mixed conifer/hardwood forest. By retaining the existing conifer, and minimizing subsequent stand maintenance activities, the regenerating stand should develop a more complex overstory than the single age, single layer, uniform stands typical of standard plantations.

Instream Restoration Sites

By conducting all tree falling and instream work in accordance with USFWS Project Design Criteria, disturbance impacts to any nesting marbled murrelets, spotted owls, or other threatened or endangered species located in the vicinity of the propose project would be minimized.

Combining tree falling, boulder clusters, boulder weirs, and coarse wood within the same reaches should be much more effective at restoring and maintaining complex instream habitats which mimic natural habitat conditions than relying on any single technique. By focusing on restoring natural habitat complexity rather than just providing one or two habitat components for a single species or guild, ecosystem restoration projects should be much more effective at sustaining the entire ecological community.

1. Stream side tree cutting

The falling of trees into the stream channel would increase instream habitat complexity in several ways, providing benefits to many aquatic and riparian associated wildlife species. The turbulence caused by small aggregations of logs would create a complex mix of slow, moderate, and high velocity areas primarily along the channel margins. These variations in water velocity would encourage deposition and sorting of sediment, restoring substrate complexity to the bedrock dominated channels, and substantially increasing the habitat available for many aquatic insects, amphibians, and invertebrates. The logs are also key habitat features. Many aquatic species (such as amphibians and fish) use the logs for security cover to hide from predators, while terrestrial species like racoons and mink use the logs to forage within the channel or cross the stream. In the smaller streams and lower gradient reaches, beaver may use the logs as anchor points for creating new beaver dams.

During high flow periods, some trees would move downstream until trapped at channel constrictions, creating debris jams. Although the effects of these jams are similar to smaller log aggregations, the influence of these jams would usually be greater, affect most or all of the channel along a larger reach of the stream. Additionally, log jams trap large amounts of both coarse and fine organic material. This material provides key habitat for aquatic insects which feed on decomposing wood, and their predators.

The cutting of trees at these sites would have a limited affect on stream side riparian habitats and the associated wildlife species. Most significantly, six conifer trees selected for cutting at site ISR #5 were identified as potential marbled murrelet nest trees. These six large conifer were selected to serve as key pieces in the log aggregations, designed to help anchor other smaller logs within the large stream system of the West Fork Smith River. Cutting these six trees would represent a small loss of potential murrelet nesting habitat, but the six trees selected were not the largest trees within the stand. The stand supports well stocked late-successional forest habitat, and the loss of these six trees should not substantially affect the quantity or quality of marbled murrelet nesting habitat. The cutting of these conifer would require formal consultation with the USFWS because the potential nest trees are located within a Late-Successional Reserve, and therefore not covered in the programmatic Biological Opinion #1-7-98-F-079. All potential nest trees would be climbed and inspected for evidence of marbled murrelet nests prior to cutting. If evidence of nesting is found, the tree and adjacent habitat would be protected from cutting and other disturbance.

2. Boulder cluster, coarse woody structure, and boulder weir placement and modification

The placement and modification of boulder clusters, boulder weirs, and coarse woody structure would provide many of the same habitat benefits as those described above for stream side tree cutting. These boulder structures are designed to create turbulent stream flow, encourage sediment deposition, and provide a limited amount of security cover. Modifying some of the existing boulder weirs by removing some of the top rocks to create dips in the structure should increase turbulence by reducing the uniformity of the surface of the structure, increasing habitat complexity, and more closely mimicking natural stream structures. Where root wads or other coarse woody structures are incorporated with the boulder structures, security cover and habitat complexity would be even greater than boulder structures alone. These structures should also help to trap additional logs being transported downstream, creating small aggregations or jams. Due to their mass, boulder structures are less likely to move during high flow events, and should facilitate restoring habitat complexity in high gradient, high velocity reaches where logs would be unlikely to remain during high flow periods.

The placement of these structures would require the use of an excavator in the stream, and multiple dump truck trips over temporary access roads to deliver boulders and coarse wood to the sites. The use of an excavator in the stream channel would stir up existing fine sediment within the reaches where work takes place. However, the areas proposed for instream work are bedrock dominated with little sediment to disturb. Furthermore, the effects of this increase in turbidity and sedimentation would be short-term, and have only very limited affects on aquatic wildlife. Most wildlife species found in these areas are adapted to short-term sediment pulses typical of Oregon Coast Range streams and should not be substantially affected.

To minimize the amount of access road construction, the excavator would be required to move short distances up and down the stream channel to move materials and construct various structures. In several cases this may require moving or damaging several existing down logs. While damage to these structures could not be avoided, the placement of large numbers of boulder structures, and falling of 656 trees into the stream should mitigate for the minor losses to existing habitat.

The construction and use of temporary roads for access to instream boulder sites would affect riparian associated wildlife species in several ways. Several hardwood trees would need to be felled to build three new access roads (totaling 400 feet), and the surface vegetation would be destroyed by repeated trips by dump trucks and the excavator. Based upon surveys of existing access roads, without rehabilitation, soil compaction is likely to prevent reestablishment of native vegetation on the road surface for at least 20 years. Due to the narrow width, the alder canopy would typically be able to fully close over the road corridor, but beneath the tree canopy a sparsely vegetated corridor would remain, fragmenting the riparian habitats. While these corridors would not function as an actual barriers to most wildlife, they are broad open areas with little cover making small or slow moving species such as amphibians, rodents, and mollusks extremely vulnerable to predators. Some species would likely avoid crossing through these areas when possible, limiting their foraging and dispersal opportunities.

3. Access road rehabilitation

Native trees, shrubs, and forbs have still not reestablished on many of the riparian access roads built in the early 1980's along the West Fork Smith River. These roads continue to fragment much of the riparian habitat, and are often used for camping and timber theft. Research suggests that it may take 30 years for trees and shrubs to naturally revegetate on compacted soils. By using multiple passes of a winged subsoiler to break up compacted access road surfaces, the time required for native vegetation to reestablish should be substantially reduced, allowing the riparian habitats to recover more quickly.

Cumulative Affects

Due to the multiple resource management goals for public lands, and intermingled private lands, many of the natural ecological processes influencing aquatic and riparian systems will not be fully restored in the foreseeable future. A large part of the existing road network will remain, reducing the input of coarse wood and large sediment to the stream systems. Natural fire patterns will continue to be modified to protect homes, businesses, and commercial resources. Commercial forestry on private and public lands will continue to simplify the vegetative and structural complexity of many forest stands. Protection and cautious restoration of aquatic and riparian habitats on selected sites should help reestablish the habitat abundance, quality, and distribution needed to support most native wildlife species associated with these habitats. Although the proposed treatments for these aquatic and riparian sites would result in some minor short-term impacts to various habitats and species, these treatments would be limited to a small portion of the habitat at a relatively few sites in the West Fork Smith River drainage. The proposed treatments should help speed restoration of key habitat components lost by previous logging, splash damming, or road construction activities, helping to maintain or reestablish most of the native wildlife species associated with aquatic or riparian habitats.

**Cultural Resources and Native American Religious Concerns**

No Action

No direct, indirect, or cumulative effects are anticipated

Proposed Action

Field review did not locate significant cultural resources in the project areas. Therefore, it is not anticipated that cultural resources will be impacted by this project. However, if any potential cultural resources are encountered during these projects, all work in the vicinity should stop and the District archeologist must be notified at once.

**Hazardous Materials and Solid Waste**

No Action

No direct, indirect, or cumulative effects are anticipated

Proposed Action

No direct, indirect, or cumulative effects are anticipated. However, any spill or release of hazardous substances resulting from equipment operations could adversely impact soils, surface and/or groundwater, in direct proportion to the quantity released. Releases in near proximity to aquatic habitat bear the greatest risk of long-term effects by contamination of spawning and rearing sediments and gravels, with increased complexity for clean-up actions.

**Environmental Justice**

There are no identified significant adverse human health or environmental effects associated with this EA for low income or minority groups.

**Chapter V - List of Agencies & Persons Contacted**

Adjacent Landowners

West Coast Forest Resources

Others

Association of O&C Counties
Coast Range Association
Confederated Tribes of Coos, Lower Umpqua, and Siuslaw Indians
Department of Forestry
Department of Land Conservation and Development
Division of State Lands
Douglas County Board of Commissioners
Donald Fontenot
Governors Natural Resources Office
David Harris
Pam Hewett
Kalmiopsis Audubon Society
Hugh Kern
Native Plant Society of Oregon
NOAA National Marine Fisheries Service
ODA - Noxious Weed Control Program
Oregon Department of Environmental Quality
Oregon Department of Fish and Wildlife
Oregon Natural Resources Council
Oregon Water Resources Department
Sierra Club, Many Rivers Group
Scott Tittringtln
U.S. Fish & Wildlife Service
Umpqua Watersheds
West Coast Forest Resources
Ron Yockim

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